Historic, archived document

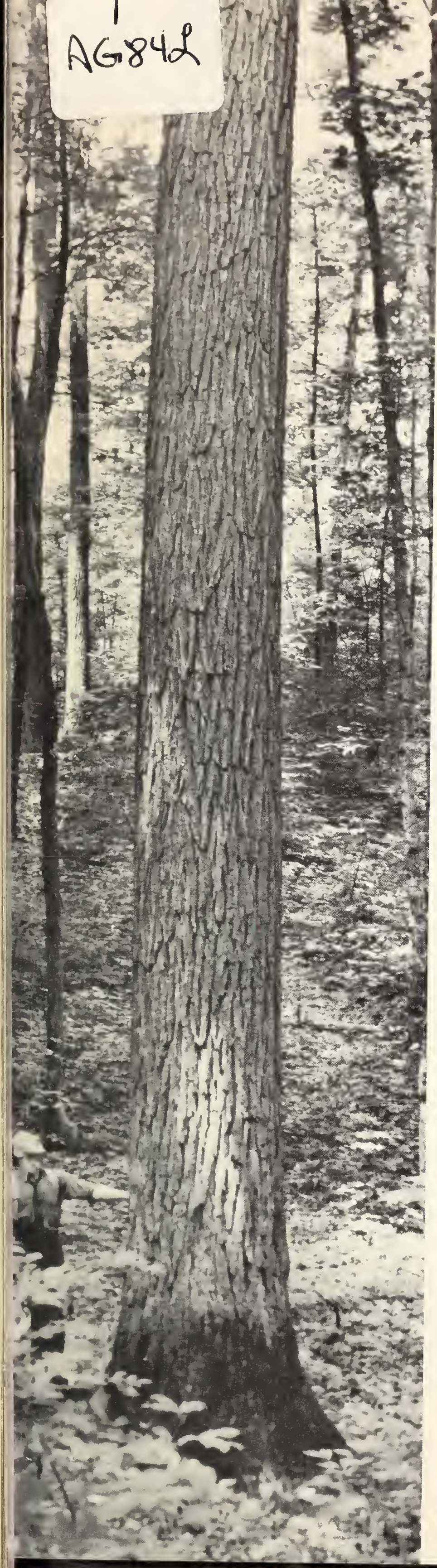
Do not assume content reflects current scientific knowledge, policies, or practices.

AG84L

Ag84L 487

487

INTERMOUNTAIN STATION
Central Reference File
No.



Planting BLACK WALNUT for TIMBER

LEAFLET NO. 487

FOREST SERVICE
RECEIVED
MAR 6 -'61
RESEARCH
INTERMOUNTAIN

U.S. DEPARTMENT OF AGRICULTURE

CENTRAL FILE COPY

Contents

Page
Choose your site carefully 1
Prepare the site for planting 1
Get good planting stock 3
Handle planting stock carefully 4
Plant in mixtures 5
Plant at the right time 5
Do a good planting job 6
Nurse young trees along 6
Seek advice for better planting 6

UNITED STATES DEPARTMENT OF AGRICULTURE
1862 1962
Growth Through Agricultural Progress

This leaflet supersedes Leaflet 84, Planting Black Walnut.

Issued February 1961.

Planting Black Walnut for Timber

By Arthur G. Chapman[1]

The demand for black (American) walnut wood is increasing but the supply of high-quality timber continues to decline. So, planting this species can be a good investment in time and money if the job is done right and certain basic principles are observed. The important thing to remember is that growing trees for timber is not the same as growing them for nuts. To get high-quality wood (the only kind worth growing) you must grow high-quality timber trees—tall and straight and with clear boles (fig. 1). If you follow the nine steps outlined below, you should get the new trees off to a good start.

Choose Your Site Carefully

Selecting the planting site is perhaps the most crucial decision to be made; it greatly affects the amount and quality of timber produced. The soil should be deep, well-drained with good water-holding capacity and air circulation, and fertile. Avoid droughty or eroded soils and soils subject to waterlogging, the latter identified by their mottling. The best soils are undisturbed hardwood forest soils that have 24 inches or more loam, sandy loam, or silt loam, ranging downward through a layer no finer in texture than a silty clay loam. Perhaps the minimum acceptable soil for planting is a silty clay loam no less than 18 inches deep, with good porosity. Such soils are most frequently found in valley bottoms, coves, and lower north- or east-facing slopes. Old-field soils may meet the minimum requirements for good growth if they have not been compacted or depleted of mineral fertility by past agricultural use. Contrary to common belief, the best agricultural soils of the corn belt are not often good walnut-producing soils; their internal drainage is relatively poor (fig. 2).

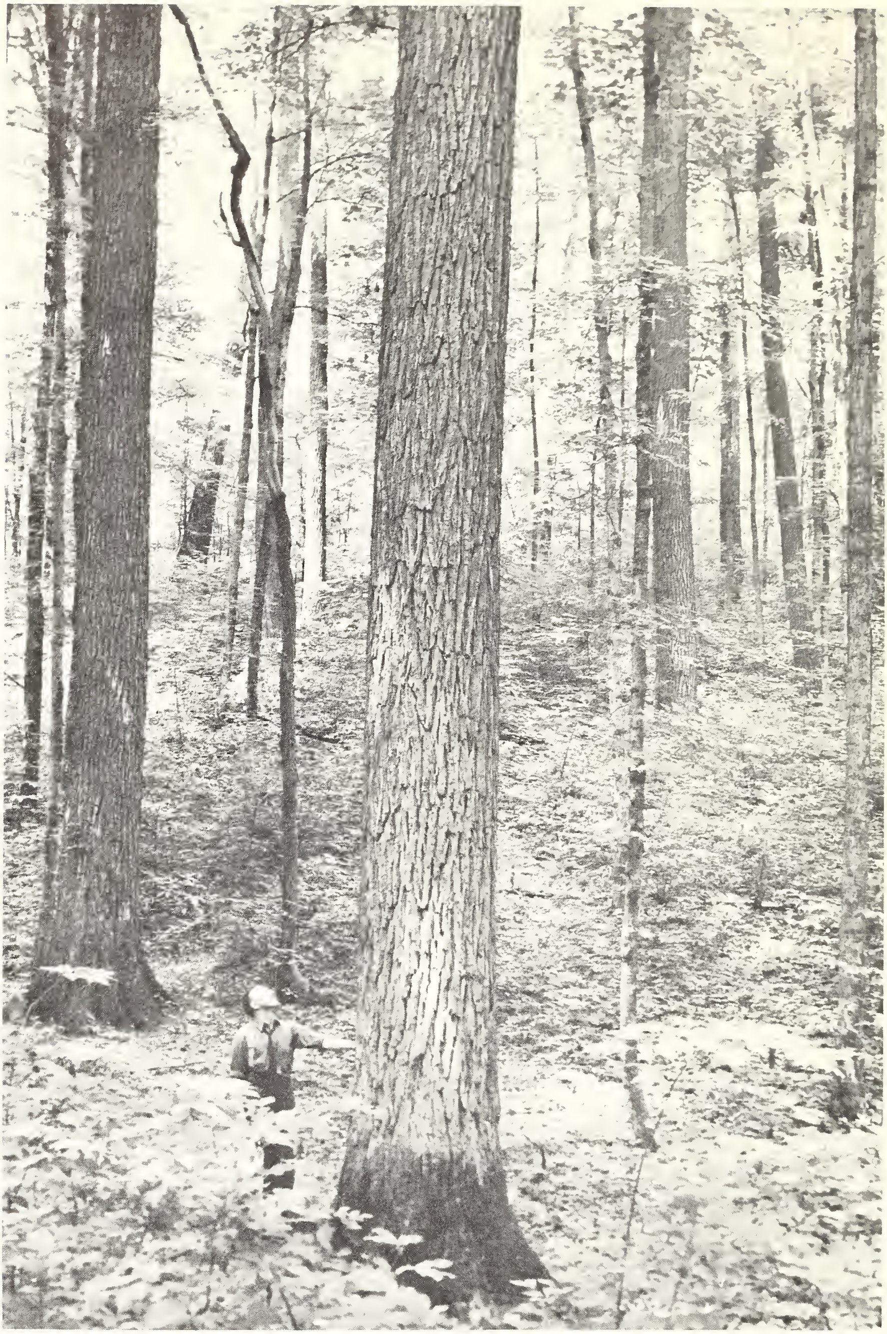
For planting, choose small tracts that are not suited to agricultural use. In a forest stand, plant in openings one-fifth of an acre or larger. If there are no natural openings, create some by removing worthless trees. Since open-grown trees nearly always develop spreading tops and short boles, plant trees in forest openings or in regular plantations on open land. Do not plant in fence rows or near farm homes or buildings where wire and other metal objects may become embedded in the tree trunks. Veneer manufacturers and other walnut processors will seldom buy trees growing in such places.

Prepare the Site for Planting

Ground preparation should be limited to breaking up a heavy sod or destroying larger plants that may endanger survival or growth of walnut seedlings by overtopping the planted trees and robbing them of soil moisture and light. Hold

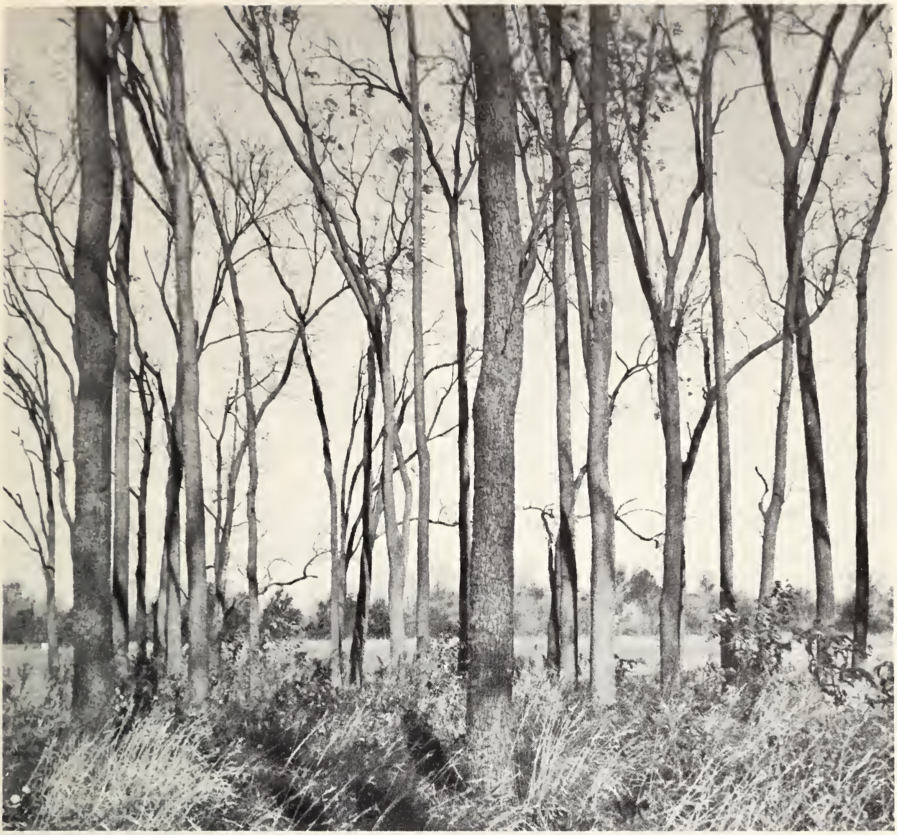
---

[1] Chief, Division of Forest Management Research, Central States Forest Experiment Station, U.S. Department of Agriculture, Forest Service, Columbus, Ohio.



F–429075

FIGURE 1.—On good sites, such as this cove, black walnut trees may develop like this: 125 feet tall, 3 feet in diameter, 4 clear logs.



F–494219

FIGURE 2.—A 77-year-old walnut planting on good cornland in Illinois. Note poor form of trees.

heavy sods or weed covers in check by plowing one or two shallow furrows 2 to 3 inches deep along each intended row of trees, or by scalping a spot 18 to 24 inches across for each tree before planting. For spring planting, plowing should be done the previous fall. For direct seeding in forest soils, leaf litter need not be removed.

Where necessary, cut small openings in a brushy area or ground cover in a forest opening. Sprouting of stumps of small trees or shrubs may be prevented or retarded by liberally applying a brush-killer solution.

Get Good Planting Stock

Some growers prefer seedlings to nuts because survival is better and there is no danger of pilferage by rodents. Squirrels and other nut-eating animals often make seed planting a hazardous business. However, it is cheaper and easier than planting trees, and seeds planted in place usually develop into better trees than do planted seedlings.

Whether you decide to use seeds or seedlings, be sure to get good stock. If you use nuts, they should come from your general area and from healthy, well-formed, forest-grown trees. If you plant seedlings, use sturdy, 10-to-14-inch, 1-year-old trees with good roots.

Both seedlings and nuts may be purchased at reasonable cost from the State Forester in most States throughout the walnut range (Eastern United States from the Great Plains to southern New England) and from commercial nurseries. But it is far better to collect the walnuts yourself from well-formed trees in the locality of planting. You can even grow seedlings at home. It requires only a well-prepared seedbed in a well-drained, silty- or sandy-loam soil. Plant nuts about 2 inches deep in rows 6 to 8 inches apart.

If you prepare and seed the beds in the fall you won't have to stratify the seed over the winter. But fall-seeded beds need special protection. After seeding, cover the beds with a leaf, straw, or other suitable mulch and then with wire netting or hardware cloth to prevent pilferage by rodents. When germination starts in the spring, beds should be uncovered. Weed and cultivate the soil as needed. Seedlings should be left in bed for 1 year.

Handle Planting Stock Carefully

Much of the success of your plantation depends upon how well you take care of the nuts or seedlings before you set them into the ground. For maximum germination, nuts should be kept moist. Removing husks is not necessary if nuts are to be field planted in the fall. But for nursery seeding or stratifying for use in the spring, it pays to husk them to save storage space and make seeding easier.

Stratifying nuts in pits for overwintering out of doors is a cheap, safe way to store them (fig. 3). Pits must be well drained so that water will not stand in them at any time. They should be located on a slope or in a deep porous soil, preferably sand or sandy loam. Or a boarded-up framework may be built above the ground surface in which nuts may be stratified.

To stratify walnuts, start with a thin layer of sand in the pit, box, or frame and build up with alternate layers of nuts—each layer 2 or 3 nuts deep—and sand, 2 or 3 inches deep. Top it off with at least 1 foot of soil to prevent freezing and drying. If squirrels are bothersome, cover the top layer with wire netting.

Seedlings should be planted shortly after digging or lifting from nursery beds. At State or commercial nurseries, seedlings are bundled in a good, water-holding material, such as sphagnum moss or shingle tow, for delivery to the landowner. As soon as they arrive—or are picked up at the nursery—place the bundles in a cool, shady place and

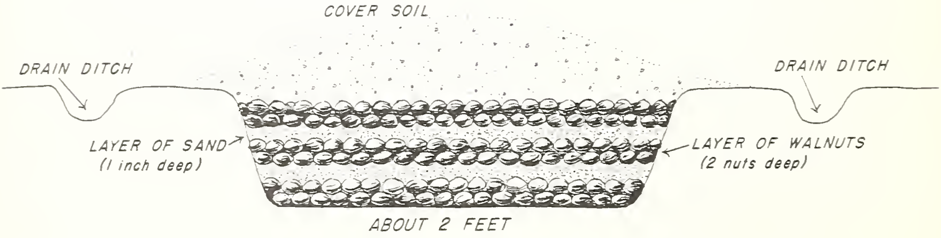


Figure 3.—Walnuts stratified in pit for overwinter storing.

water at least once each day. If planting cannot be done for a few days, open the bundles and "heel in" the seedlings in a shaded, well-drained trench, deep enough to accommodate 8- to 10-inch roots. If soil is well packed around the roots and watered, the stock will remain in good condition for a week or 10 days. But seedlings should be planted before leaves appear. The best practice is to leave the trees in the nursery beds until they can be planted; this practice is simple if seedlings are grown at home. Keep seedling roots moist until planted.

Plant in Mixtures

Walnut grows better in mixture with other hardwood species; it develops taller, better formed, and less branchy stems than if grown in pure stands. The reason is that foliage of the walnut tree, being much less dense than that of most hardwoods, does not cast enough shade to cause natural pruning of the lower crown branches as the tree grows. Also, dense bluegrass sod often develops under pure stands of walnut and retards tree growth. But in mixture with dense-foliage species, such as oak, maple, and yellow-poplar, lower crown branches of the walnut are heavily shaded and die. And sod does not form in such a stand.

Choose species to plant in mixture with walnut that have site requirements and growth rates similar to those for walnut. In the eastern part of the walnut range, yellow-poplar, eastern red oak, and white ash may be used; in the western part, select species naturally associated with walnut in the vicinity of the planting site. Generally, about one-fourth of the trees should be walnut, evenly distributed throughout the plantation. Black locust serves as a soil conditioner in mixture with walnut but must be used cautiously, especially on dry sites. Locust grows much faster than walnut, spreads by root sprouts, and may overtop the walnut trees in 2 or 3 years if more than 20 to 25 percent of the planted trees are locust. A good combination is 25 percent locust, 25 percent walnut, and 50 percent of other species. To get good distribution of the walnut, alternate rows in which every other tree is a walnut with rows composed entirely of other hardwoods.

In forest openings or in plantations, walnut may be planted individually or in small groups of two to five. Trees should be planted so that they have full overhead light; do not plant them under the crowns of other trees.

Plant at the Right Time

When to plant depends somewhat upon whether seedlings or nuts are used, and upon location within the walnut range. Seedlings usually do better if planted in the spring, especially in the northern half of the natural range of walnut. Here March through early May is the best time. In the southern part of the range, many planters prefer the late fall and winter months. Fall planting in the north is risky because of frost heaving, winterkill, and rabbits. However, frost damage is slight to seedlings fall planted in forest openings where the litter mulch prevents frequent freezing and thawing.

Nuts may be planted in either fall or spring, but spring planting is the more common practice. Fall planting is preferred where damage by rodents and hogs is not a problem during the several months between planting and germination. Planting should be done before visible germination.

Do a Good Planting Job

Planting nuts is easier, faster, and cheaper than planting seedlings. In the spring or fall when the ground is soft, drop a nut on the desired spot and press it into the soil with your heel to a depth of about 2 inches. Then kick loose soil over the nut. (It must be covered with soil.) Or, using a stick, punch a hole of the proper size and depth to receive a nut. Some planters prefer to place two nuts to the spot as insurance against total loss by rodent pilferage. Others choose to assure good stocking by closer spacing of planting spots. To prepare seed spots, use any lightweight grub hoe, garden hoe, or other suitable tool.

Walnut seedlings usually have spreading lateral roots along the taproot. You'll need a grub hoe, mattock, tile spade, or shovel to dig a hole deep and wide enough to accommodate the main roots without doubling them back toward the surface. Roots longer than 8 inches should be pruned back to that length; no harm will be done to the tree. The root crown of the planted tree should be about 1 inch below the ground surface after the soil is pressed firmly about the roots.

A bucket, planting tray, or other handy container may be used for carrying seedlings during the planting job. The container should hold water or water-saturated materials about the roots at all times to prevent drying.

For production of good walnut timber, space trees about the same as those in well-stocked natural stands to assure self-pruning of lower branches. When nut or seedling spotting is done in forest openings, put them where they have no overhead shade. But trees (walnut plus other species) planted in large, open areas should be spaced 6 or 7 feet apart—about 1,000 to the acre.

Nurse Young Trees Along

Young walnut trees and trees of other species planted in mixture with them need help and protection, especially during the first 3 or 4 years. Cut weeds, brush, or trees shading the main parts of the crowns. Occasional cultivation of the soil around trees and mulching with leaves, weeds, or other available organic material will retard weed growth and conserve moisture. Prune forked trees to one main stem. As the trees develop, necessary pruning may be more effectively done when branches are small with little heartwood.

Make frequent inspections to check for insect and disease attacks. Fire and livestock must, of course, be kept out of your plantation.

Seek Advice for Better Planting

State foresters, State agricultural experiment stations, State extension foresters and county agents, farm foresters, local U.S. Forest Service officers, and forestry consultants are able to give specific information about your local conditions either through publications or on-the-ground inspection. The American Walnut Manufacturers Association—666 Lake Shore Drive, Chicago 11, Ill.—is glad to offer good suggestions. When planting stock is purchased from State nurseries, instructions on how to plant often accompany the shipments.

Information on selling may be obtained from Farmers' Bulletin 1459, "Selling Black Walnut Timber."

U.S. GOVERNMENT PRINTING OFFICE : 1961 O—569451

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington 25, D.C. - Price 5 cents